



GCSE

Additional Science A

General Certificate of Secondary Education A216/01

Unit 2: Modules B5, C5, P5 (Foundation Tier)

Mark Scheme for June 2010

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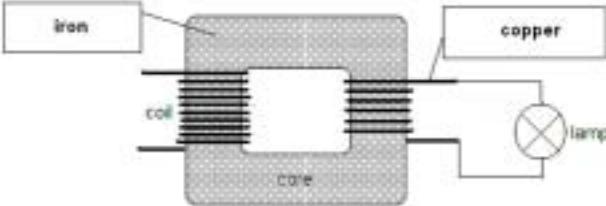
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Question	Expected Answers		Marks	Additional Guidance
1 a	rain (onto land) (1) (idea of water / rain) dissolves salt /picks up salt / washes salt (1) (salt) taken by rivers / streams (to the sea) (1) idea of erosion (1)		[3]	ignore rocks fall into the sea/ corrosion
b	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px; flex: 1;"> small molecules </div> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> </div> <div style="display: flex; align-items: center; gap: 10px; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; flex: 1;"> weak forces of attraction </div> <div style="border: 1px solid black; padding: 2px; flex: 1;"> [] </div> </div>		[2]	mark each column separately, 1 mark for each correct column a column is correct if the correct box, and no other, is indicated, though it may have more than one line attached to it
c i	5 (1)		[1]	
c ii	10 (1)		[1]	
d	bacteria in the soil <input type="checkbox"/> ...roots of some plants <input checked="" type="checkbox"/> (1) eating <input type="checkbox"/> decomposers <input type="checkbox"/>		[1]	
	Total		[8]	

Question		Expected Answers	Marks	Additional Guidance
2	a	<p>It conducts electricity. <input checked="" type="checkbox"/> (1)</p> <p>It is non-magnetic. <input type="checkbox"/></p> <p>It is malleable. <input checked="" type="checkbox"/> (1)</p> <p>It is very hard. <input type="checkbox"/></p> <p>It is silvery. <input type="checkbox"/></p>	[2]	
	b i	40% (1)	[1]	
	ii	quartz (1)	[1]	
	c i	<p>...to melt a compound <input type="checkbox"/></p> <p>...to purify a compound <input type="checkbox"/></p> <p>...to make a compound <input type="checkbox"/></p> <p>... to decompose a compound <input checked="" type="checkbox"/> (1)</p>	[1]	
	ii	negative (electrode) / cathode (1)	[1]	
		Total	[6]	

Question		Expected Answers	Marks	Additional Guidance
3	a	resistance (1) temperature (1)		[2]
	b	9 Ω (1)		[1]
	c			<p>[1]</p> <p>look for V in a circle [not a square] with lines to either end of thermistor [accept the 'V' on its side] one end connected anywhere between A and B the other end connect anywhere between C and D The voltmeter maybe 'inside' the circuit</p> <p>accept diagram at bottom of page If there is an answer in both positions, neither crossed out, mark the top one only.</p> <p>Candidates answer should be on the printed diagram. IF NOT, they may have drawn another diagram which can score the marks.</p>
		Total		[4]

Question		Expected Answers	Marks	Additional Guidance						
4	a	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">The battery...</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">...resists...charge.</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Each resistor...</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">...measures the current.</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">The ammeter...</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">...pushes charge...</div> </div>	[2]	<p>all correct = 2 marks one or two correct = 1 mark more than one line from or to any box negates that box</p>						
	b	<p>any two from: more / increased current; less / decreased resistance; uses the term 'parallel' correctly; now has two ways of getting round / goes through the other resistor or the other part / whole or full circuit;</p>	[2]	<p>accept more charge flowing around ignore any ref to ammeter reading. ignore more electricity/voltage/power</p> <p>two resistors in parallel have less resistance =2</p> <p>ignore nothing stopping the electricity</p>						
	c	<table border="1" style="margin-bottom: 5px;"> <tr> <th>switch</th> <th>ammeter reading</th> </tr> <tr> <td>open</td> <td>2</td> </tr> <tr> <td>closed</td> <td>4</td> </tr> </table> <p style="text-align: center;">(1)</p>	switch	ammeter reading	open	2	closed	4	[1]	
switch	ammeter reading									
open	2									
closed	4									
		Total	[5]							

Question		Expected Answers	Marks	Additional Guidance
5	a	 <p>The diagram shows a rectangular iron core with a vertical slot in the center. A coil of wire is wound around the core, with one end of the coil connected to a lamp. The other end of the coil is connected to a 230 V a.c. power source. Labels 'iron' and 'copper' are placed near the top and bottom of the core respectively. The word 'core' is written inside the slot.</p>	[2]	each correct entry for 1 mark
	b	230 V a.c.	[1]	
	c	24 (1) W (1)	[2]	<p>accept watt(s) instead of W</p> <p>independent marking</p> <p>allow units in first space if second space blank</p>
		Total	[5]	

Question		Expected Answers	Marks	Additional Guidance
6	a	<p>any three from the following:</p> <p><i>Clone</i> - the new plant/cutting/it is a clone</p> <p><i>Hormone</i> - Links hormone/auxin to growth or development [of any part of the plant]</p> <p><i>unspecialised cells</i> - infers that these are the cells which actually develop/ change/ specialise/ differentiate [into something else]</p> <p>xylem cells – infers that these develop from the unspecialised cells</p>	[3]	<p>IGNORE ANY INCORRECT STATEMENTS, unless they actually contradict a correct statement.</p> <p>Eg ignore 'cutting is a clone of the DNA' ignore "They clone cells that are needed"</p> <p>ignore 'the hormones <u>in</u> the plant', "the cutting gives off a hormone", "hormone stimulates plant" 'auxin is a hormone' – not enough for a mark</p> <p>the hormone auxin helps the plant respond to light. BOD for growth</p> <p>accept 'unspecialised cells grow <u>into any cell</u>'</p> <p>ignore 'unspecialised cells grow' ignore "all plant cells are unspecialised" ignore 'the unspecialised cells in the cutting means <u>it</u> can grow into something else"</p> <p>ignore 'meristem'</p> <p>"unspecialised cells develop into xylem cells" = 2 "[meristem cells] develop into xylem cells" = 1</p>
	b	mentions light/photosynthesis (1)	[1]	<p>ignore any mention of 'Sun', but accept 'sunlight'</p> <p>reject incorrect statements, e.g. Plant gets its food from the sunlight</p>
		Total	[4]	

Question		Expected Answers			Marks	Additional Guidance																
7	a	<table border="1"> <thead> <tr> <th>process</th> <th>cell growth</th> <th>mitosis</th> </tr> </thead> <tbody> <tr> <td>more organelles are formed</td> <td>✓</td> <td></td> </tr> <tr> <td>the cell divides</td> <td></td> <td>✓</td> </tr> <tr> <td>copies of chromosomes are made</td> <td>✓</td> <td></td> </tr> <tr> <td>copies of chromosomes separate</td> <td></td> <td>✓</td> </tr> </tbody> </table>			process	cell growth	mitosis	more organelles are formed	✓		the cell divides		✓	copies of chromosomes are made	✓		copies of chromosomes separate		✓	[2]	<p>four rows correct = 2 marks three or two rows correct = 1 mark one or none correct = 0 marks more than one tick on any one row negates that row.</p>	
process	cell growth	mitosis																				
more organelles are formed	✓																					
the cell divides		✓																				
copies of chromosomes are made	✓																					
copies of chromosomes separate		✓																				
	b	24 (1)			[1]																	
	c i	<table> <tbody> <tr> <td>cell wall</td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>nucleus</td> <td><input checked="" type="checkbox"/></td> <td>(1)</td> </tr> <tr> <td>cytoplasm</td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>cell membrane</td> <td><input type="checkbox"/></td> <td></td> </tr> </tbody> </table>			cell wall	<input type="checkbox"/>		nucleus	<input checked="" type="checkbox"/>	(1)	cytoplasm	<input type="checkbox"/>		cell membrane	<input type="checkbox"/>		[1]					
cell wall	<input type="checkbox"/>																					
nucleus	<input checked="" type="checkbox"/>	(1)																				
cytoplasm	<input type="checkbox"/>																					
cell membrane	<input type="checkbox"/>																					
	ii	double helix (1)			[1]																	
		Total			[5]																	

Question		Expected Answers	Marks	Additional Guidance
8	a	<p>They disappear... <input type="checkbox"/></p> <p>They divide. <input checked="" type="checkbox"/> (1)</p> <p>They form a hard crust. <input type="checkbox"/></p> <p>They are specialised. <input type="checkbox"/></p>	[1]	
	b	<p>They make it taste nice. <input type="checkbox"/></p> <p>They increase its height. <input checked="" type="checkbox"/> (1)</p> <p>They make it colourful. <input type="checkbox"/></p> <p>They decrease its thickness. <input type="checkbox"/></p>	[1]	
Total		[2]		

Question		Expected Answers		Marks	Additional Guidance
9	a	G T C A		[1]	four correct = 1 mark
	b	i	cell wall nucleus cytoplasm cell membrane	[1]	
		ii	Donny	[1]	
			Total	[3]	

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